UAF scientists discover new species in Arctic Ocean

by Doug Schneider

University of Alaska Fairbanks scientists returning from a month-long exploration of the deep sea beneath the arctic ice pack say the region is teeming with marine life, and have found species previously unknown to science.

"We believe we have found perhaps seven new species," said Rolf Gradinger, a marine scientist at the UAF School of Fisheries and Ocean Sciences, and the expedition's chief scientist. "Not just species new to us, but new to science. We found more species than we expected and different species than we expected."

Among the new species discovered is a previously unknown type of jellyfish. The cone-shaped jelly is orange and appears to have ridges running the length of its soft body.

"It's something scientists hadn't seen before," said Gradinger. "It was pretty emotional for us, because we may be the first people on earth to see it."

The month-long cruise explored the Canadian Basin, a vast region northeast of Alaska in the Arctic Ocean. Scientists used remotely operated vehicles equipped with specialized collection devices to capture marine organisms in waters as deep as 11,000 feet. High definition television was also employed to videotape species in their natural environment.

"From my perspective the highlight of the expedition was being able to see the fascinating colors and movement of the animals," said Gradinger.

UAF marine scientist Bodil Bluhm said her research team discovered what they believe are three new species of marine polychaete worms, and five worm species that had not been previously documented in the Canadian Basin.

"They look a bit like the worms we find in our gardens," said Bluhm. "But these worms are different in that they can live on the limited food that settles at these extreme depths."

Scientists also found pelagic snails, feather stars, sea cucumbers, sea anemones, bristle stars and other species in great abundance.

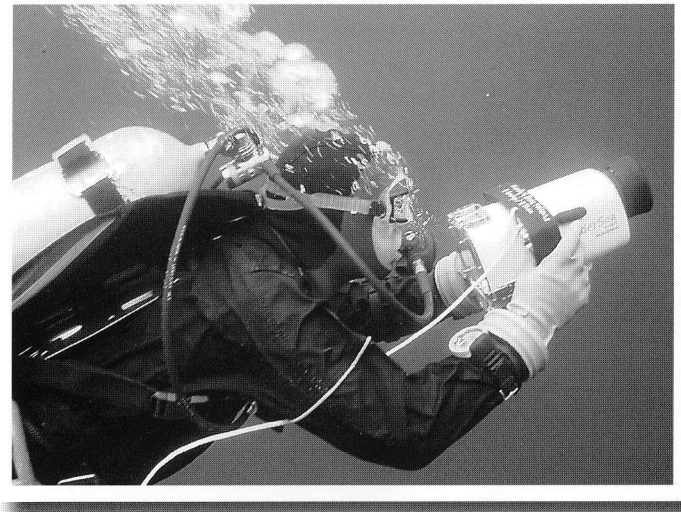
"The densities were much higher than we expected," said UAF marine scientist Russ Hopcroft. "What continues to fascinate and motivate us all is the chance to record species never known before, to accurately map their range and understand their rapidly changing habitat."

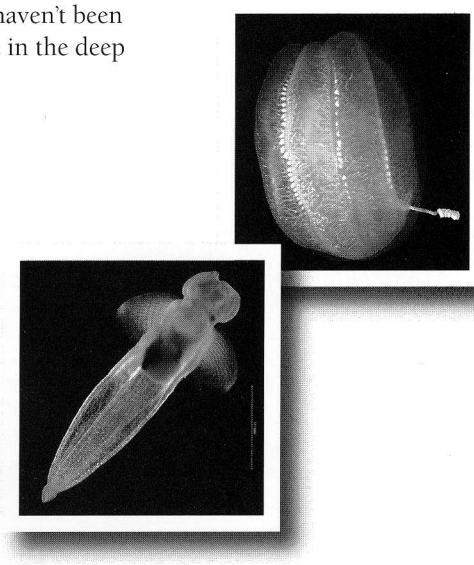
Scientists have long believed that species biodiversity is reduced in areas closer to the poles. But scientists say that may be because they haven't been able to look for marine life in the deep arctic seas.

Twenty-four scientists from the United States, Canada, Russia and China explored the Canadian Basin from the sea ice through the water column to the seafloor. The expedition, aboard the United States Coast Guard icebreaker *Healy,* was funded by the NOAA Ocean Exploration Program. The research will contribute to the Census of Marine Life, a 10-year, $1 billion project funded by government and private donors.

"The major thing we should all be proud of is that we sampled from 14 stations in up to 11,000 feet of water covered by sea ice," said Bluhm. "That's the operational success we needed to make these important scientific discoveries."

UAF researchers who took part in the expedition included Rolf Gradinger, Bodil Bluhm, Russ Hopcroft, Terry Whitledge, Dean Stockwell and Katrin Iken; UAF graduate students involved were Elizabeth Calvert, Shawn Harper and Mette Nielson; UAF research technicians included Brenda Holladay and Sarah Thornton.





Left: Under-ice diver Shawn Harper collects underwater video. Above, top to bottom: comb jelly (Aulacotena sp.) *and shell-less pelagic snail* (Cliona limacina).

Photos by Katrin Iken, Kevin Raskoff and Russ Hopcroft.